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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/608,004	06/30/2003	Per Carlsson	003301-061	1961

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EXAMINER	
ARTMAN, THOMAS R	

ART UNIT	PAPER NUMBER
2882	

DATE MAILED: 02/15/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

CT

Office Action Summary	Application No.	Applicant(s)	
	10/608,004	CARLSSON ET AL.	
	Examiner	Art Unit	
	Thomas R Artman	2882	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *30 June 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-30* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-15 and 17-30* is/are rejected.

7)☒ Claim(s) *16* is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *30 June 2003* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *06/30/2003*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claims 1, 2, 4-14, 19-21 and 23-27 are provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claims 1-19 of copending Application No. 10/607,994. The conflicting claims are not identical because the conflicting application does not specifically state that a portion of the sources remain fixed relative to the collimator passage inlets, as required by claims 1, 20 and 21 of the present application. However, the claims are not patentably distinct from each other because the conflicting claims 1 and 20 state that at least a subset of said sources is displaceable relative to at least a subset of collimator passage inlets, which does not specify whether or not the remaining subsets are moved. This clearly implies that, if at least one subset of sources is displaceable relative to the inlets, then the other subsets of sources may remain fixed in their relative positions

with the inlets. Therefore, the scope of claims 1-19 of the conflicting application includes the scope of claims 1, 2, 4-14, 19-21 and 23-27 of the present application.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claims 3 and 22 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Both claims recite "the envelope surface" of the collimator body, without antecedent basis for the term. It is not clear what the applicant intends the "envelope surface" of the collimator body to be.

Claims 10, 13-15, 18-20 and 28 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

A broad range or limitation together with a narrow range or limitation that falls within the broad range or limitation (in the same claim) is considered indefinite, since the resulting claim does not clearly set forth the metes and bounds of the patent protection desired. Note the

explanation given by the Board of Patent Appeals and Interferences in *Ex parte Wu*, 10 USPQ2d 2031, 2033 (Bd. Pat. App. & Inter. 1989), as to where broad language is followed by "such as" and then narrow language. The Board stated that this can render a claim indefinite by raising a question or doubt as to whether the feature introduced by such language is (a) merely exemplary of the remainder of the claim, and therefore not required, or (b) a required feature of the claims. Note also, for example, the decisions of *Ex parte Steigewald*, 131 USPQ 74 (Bd. App. 1961); *Ex parte Hall*, 83 USPQ 38 (Bd. App. 1948); and *Ex parte Hasche*, 86 USPQ 481 (Bd. App. 1949).

Claims 10 and 18 recite the broad recitation "at least an arc of a circle", and the claims also recite "preferably an entire circle" which is the narrower statement of the limitation.

Claims 13 and 20 recite the broad recitation "at an angle of 0-45°", and the claims also recite "such as 5-25°, preferably 10-15°" which are the narrower statements of the range.

Claim 14 recites the broad recitation "actuator", and the claim also recites "preferably comprising an arm" which is the narrower statement of the limitation. Furthermore, the claim further recites that the "direction of displacement is preferably along the longitudinal axis of the actuator." The term "preferably" does not clearly set forth the claimed invention.

Claims 15 and 28 recite the broad recitation "along a curvature", and the claims also recite "such as along an arc of a circle" which is the narrower statement of the limitation.

Claim 19 recites the broad recitation "shaft", and the claim also recites "such as a crankshaft" which is the narrower statement of the limitation.

For the purposes of expediting prosecution, the examiner shall examine the above claims upon the merits of the broadest range/limitation recited in the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

Claims 1-5, 12, 14, 15, 17, 18, 20-24 and 28-30 are rejected under 35 U.S.C. 103(a) as being unpatentable over Krispel (US 6,512,813).

Regarding claims 1 and 20, Krispel discloses a radiotherapy device and method of use (Figs.1, 2, 4a and 4b), including:

a) a source carrier arrangement 24 carrying radioactive sources 25a-d, and

b) a collimator body 30 comprising collimator passages 31ai-di for directing radiation emanating from the sources toward a common focus 26, each collimator passage having an inlet (not labeled, ends of passages 31ai-di) for receiving the radiation, where

c) the device enables a change of a spatial dose distribution surrounding the focus.

Furthermore,

d) with respect to claims 2 and 21, the collimator has at least two segments (30a, 30b), each segment carries a subset of the collimator inlets (31ai, 31bi), and each segment is individually displaceable (Fig.4);

e) with respect to claims 3 and 22, the segments 30 are each displaceable along an envelope surface (inner surface) of the source body (Figs.1a and 4a);

f) with respect to claims 4 and 23, each subset 30a-d has at least one row of inlets 31ai that are jointly displaceable in register with sources 24a aligned in a corresponding row (in bores 25ai), and which are jointly removable from the sources by displacement of the segment 30a;

g) with respect to claim 5, the collimator body has several parallel rows of collimator inlets 31ai-di, where each row directs focus radiation beams of different cross section (Figs.1a, 2 and 5a-5c);

h) with respect to claim 12, the source carrier arrangement 24 has an envelope surface shaped substantially like the frustrum of a cone (see Fig.1a);

i) with respect to claim 14, the segments 30a-d are attached to an actuator (not shown);

j) with respect to claims 15 and 28, each segment 30a-d is displaceable along a curvature (see Fig.1a);

k) with respect to claim 17, the collimator body is of substantially hemispherical shape with an annular base, each segment is displaceable in a rotary motion in relation to an axis extending from the center of the annular base to the crest of the hemisphere (Figs.7a-b).

l) with respect to claim 18, the collimator body has a cross section of at least an arc of a circle, where the inlets and sources are distributed along the circle, and each segment 30a-d is displaceable along the arc of the circle;

m) with respect to claims 24 and 30, the segments 30a-d are displaced such that the collimator inlets are moved from a position in which a first size of collimator inlets are registered with the subsets of sources 24a-d to a position in which a second size of collimator inlets are registered with the subsets of sources (see Figs.5a-c);

n) with respect to claim 29, the segments 30a-d are displaced so that the collimator inlets are moved from a position in which the sources are in register with collimator inlets 44 to a position where the sources are not in register with collimator inlets (blocked inlets 44x, see Figs.5a-c).

Krispel does not specifically disclose that the source carrier arrangement is arranged to allow a subset of the sources to be displaced relative to the inlets while the others are left fixed relative to the inlets. Rather, the source carrier arrangement of Krispel is arranged to allow a subset of the collimator inlets 31ai to be displaced relative to a subset of the sources 24a while other subsets of the collimator inlets 31bi-di may remain fixed relative to the sources 24b-d. That is to say, the structure is reversed, where subsets of collimators are moved with respect to the sources. The arrangement achieves the necessary relative motion between collimator inlets and sources for the common purpose of changing the spatial dose distribution in order to spare the healthy tissues surrounding the focus (col.2, lines 8-64).

It would have been obvious to one of ordinary skill in the art at the time the invention was made for Krispel to move subsets of sources relative to collimator inlets, rather than moving collimator inlets with respect to the sources. Both arrangements use the relative motion of subsets of elements in order to change the spatial dose distribution surrounding the focus in order to reduce the amount of dose to the healthy tissues surrounding the focus. Therefore, the arrangements are functionally equivalent and equally suitable to the purpose without any evidence pertaining to the criticality and/or unexpected results of the arrangement.

Allowable Subject Matter

Claims 6-11, 13, 16, 19 and 25-27 are objected to as being dependent upon a rejected base claim, but would be allowable if rewritten in independent form including all of the limitations of the base claim and any intervening claims.

The following is a statement of reasons for the indication of allowable subject matter:

The prior art of record neither teaches nor reasonably suggests the additional limitation that each segment is individually displaceable in a direction substantially perpendicular to and intersecting the rows of collimator inlets, as required in the combination of claim 6.

Claims 7 and 8 are objected to by virtue of their dependency.

The prior art of record neither teaches nor reasonably suggests the additional limitation where each segment is linearly displaceable relative to the collimator body such that the relative position between the subsets of sources and subsets of collimators is linear, as required by the combination of claims 9 and 25.

The prior art of record neither teaches nor reasonably suggests the additional limitation that the collimator body has a cross section of an arc, where the subsets are linearly displaceable relative to each other in a direction substantially perpendicular to the cross section, as required by the combination of claim 10.

The prior art of record neither teaches nor reasonably suggests the additional limitation that the relative motion between the sources and inlets are linearly displaceable relative to each other essentially parallel to the z-axis, or within an angle of 0-45° of the z-asix, of a Leksell x,y,z coordinate system, as required by the combination of claims 11 and 26, and claims 13 and 27, respectively.

The prior art of record neither teaches nor reasonably suggests the additional limitation that the collimator body is substantially of hemispherical shape with an annular base, and where each segment is displaceable in a rotary motion in relation to an axis extending along the diameter of the annular base, as required by the combination of claim 16.

The prior art of record neither teaches nor reasonably suggests the additional limitation where the segments are attached to a shaft, where the segment is displaceable by rotation of the shaft, as required by the combination of claim 19.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Song (US 5,528,653) teaches a rotating source/collimator array where the sources are fixed to the collimator inlets. Song (US 5,757,886) teaches a rotating source array and rotating collimator inlet array, where all the sources move together and all the collimator inlets move together. Rouseau (US 6,044,126) teaches the practice of having static sources and

interchangeable helmets having different sizes of collimator passages. Song (EP 1 057 499 A2) teaches a set of collimators that all move as one relative to a set of sources that move as one.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Thomas R Artman whose telephone number is (571) 272-2485. The examiner can normally be reached on 9am - 6:30pm Monday - Friday.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ed Glick can be reached on (571) 272-2490. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Thomas R. Artman
Patent Examiner

Craig E. Church
Primary Examiner